

CLAIMS

What is claimed is:

1. A process for the production of a multi-structural filament containing a single ingredient and having improved mechanical properties as compared to conventional monofilaments consisting of the same ingredient, comprising extruding the single ingredient from two or more extruders in tandem through the same die pack having two or more different flow paths, wherein the flow path of the ingredient from one of the extruders provides less shear than does the flow path for the same ingredient from the other extruders, thereby providing a filament having two or more distinct regions within the cross section of the filament, each region having a different morphology from any other region and wherein each region of the filament comprises at least about 7 percent by volume of the filament.
2. The process according to claim 1, wherein the single ingredient is selected from the group consisting of polyamides, polyesters, polyolefins and high performance thermoplastics.
3. The process according to claim 1, wherein the single ingredient is a blend of materials.
4. The process according to claim 1, wherein the single ingredient is a copolymer.
5. The process according to claim 1, wherein the single ingredient is polyphenylene sulfide.
6. The process according to claim 1, wherein the single ingredient is a nylon copolymer.

7. The process according to claim 6, wherein the single ingredient is nylon 6/66.
8. The process according to claim 1, wherein the distinct regions of the filament are its sheath and core.
9. The process according to claim 1, wherein the distinct regions of the filament are a core and four tips.
10. The process according to claim 1, wherein each region comprises at least 10 percent by volume of the filament.